QualColor™ 12" LED Array

User Manual

Giulio
Lighting

Please read through these notes and the remaining instructions before installing this device.

1. Refer to local and state codes to ensure compliance when installing this device. Consult an Electrical Inspector if you have any questions.

2. Use only with a Giulio Lighting LED Controller powered by a listed Class 2 or Limited Power Source external power supply.

3. LEDdrive cables should be rated CL2 or better with 24 AWG conductors.

4. Do not interconnect ethernet and LEDdrive devices even though they use the same RJ45 connector. Damage may result.

5. Do not more than ten (10) of these devices in series to one LED Controller.

6. Do not exceed the maximum LEDdrive cable length.

7. Use only insulated staples or plastic ties to secure cords.

8. Make sure that power is disconnected before connecting or disconnecting any LEDdrive devices.

9. Make sure this device is located in a dry environment.

10. Clean the fixture according to the instructions in this manual. Never use abrasive cleansers, pads or gritty cloths. Never use window cleaning fluids or other strong solvents.

11. Be sure to plan the installation before beginning.

QualColor 12" LED Array
Model LA-001

The Model LA-001 12" LED Array is part of the QualColor family. This high quality luminaire is designed to work with an external Giulio Lighting LED Controller with LEDdrive output such as the LC-001. Combing warm white LEDs with single-package RGB LEDs the LA-001 generates a rich spectrum of light with high quality white, warm hues and fully saturated colors. With a wide even light output, the LA-001 is ideally suited for many decorative applications.

Location	Uses
Under-cabinet lighting	Enhance a kitchen by turning a boring white backsplash into an infinitely changeable decorative accent.
Over-cabinet lighting	Splash color off of a white ceiling.
In-cabinet lighting	Turn a collection of glassware into a stunning ever-changing display of multi-faceted light.
Cove lighting	Create a beautiful mood in a room.
Back lighting	Outline an object in beautiful colors.
	Shine light through a translucent surface.

Introduction

Pre-installation

It can be helpful to plan an installation prior to starting to physically install components.

The following items should be considered when creating the plan.

Locating the LA-001

The LA-001 is designed to provide indirect illumination. Locations where the individual LEDs in the LA-001 are visible may be visually distracting. The LA-001 should be located so the LEDs are not visible but their light is reflected off another surface or otherwise diffused.

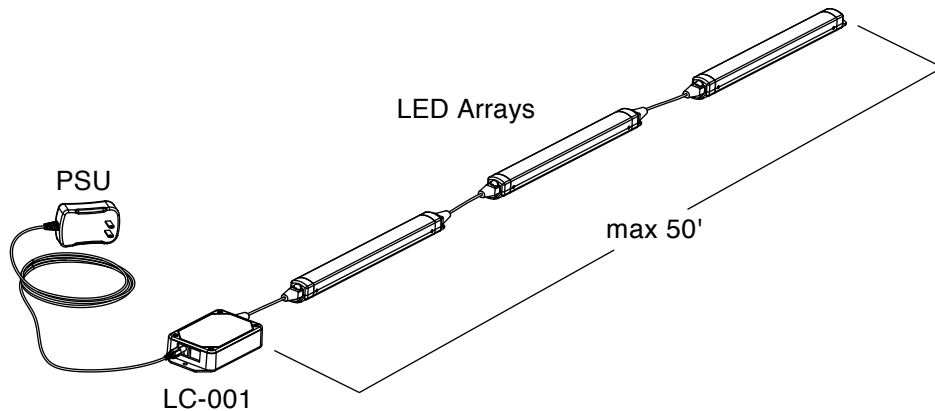The LA-001 may be installed in any position or orientation. It must be installed in a dry location.

The LA-001 fixture generates a wide, approximately 120°, beam width. Typically it should be centered before any surface it is to illuminate. It may be helpful to locate it toward the front of a cabinet when located in an under-cabinet position so that the cabinet lip can hide the fixture. The effectiveness of this position may be tested by temporarily connecting a LA-001 to a LED controller and power supply, making the device operational and holding it in place to observe the result.

The distance between fixtures must be considered when multiple LA-001 fixtures are to be installed and a continuous illumination pattern is desired. The distance between fixtures depends on the distance to the surface being illuminated. The following table can assist in determining the distance between fixtures in a linear array (as measured from the mounting hole of one fixture to the mounting hole of the next fixture). Cable length between fixtures should be approximately 2″ (5 cm) longer.

Distance to Surface	Maximum Distance Between Fixtures
12″ / 30.5 cm	approx 5″ / 12.7 cm
24″ / 61 cm	approx 14″ / 35.6 cm
36″ / 91.5 cm	approx 30″ /76.2 cm

Maximum number of LA-001 fixtures

A maximum number of ten (10) LA-001 fixtures can be connected to one LED Controller using RJ45 cabling with 24 AWG conductors as shown below. The LA-001 fixtures are connected in a daisy chain fashion, the output of one feeding the input of the next. The two LEDdrive connectors on a LA-001 are identical. It does not matter which end is used as an input and which end is used as an output. The maximum distance from the LED Controller to the final LA-001 fixture is 50 feet (approximately 15 meters).

Determine LEDdrive cabling

Determine the cable distance necessary from the LED Controller to the first LA-001 fixture and between all LA-001 fixtures to be installed. Some cable lengths may be purchased directly from Giulio Lighting or from other sources. Custom cables may also be constructed using that same tools used for ethernet cabling.

See the section "LEDdrive pinout" for information on the LEDdrive cabling between the LED Controller and fixtures.
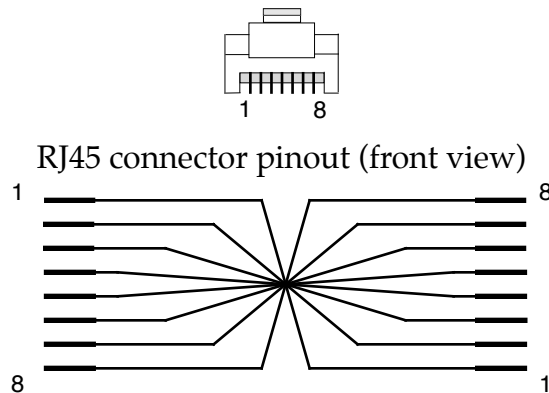
LED Controller Configuration

The LED Controller must be configured to drive a RGBW LED Array. Please refer to the User Manual that came with the controller for configuration instructions.

LEDdrive Pinout

LEDdrive cables are based around ethernet cabling technology to simplify building custom cables in the field. LEDdrive cables have the following requirements.

1. Minimum conductor size of 24 AWG.

2. Cable type of CL2 or better. A higher rated cable may be substituted (CMP, CL3P, CL2P, CMR, CL3R, CL2R, CMG, CM, PLTC, CL3).

3. Cable wiring is identical to ethernet "straight-through" wiring as shown by the following illustrations.
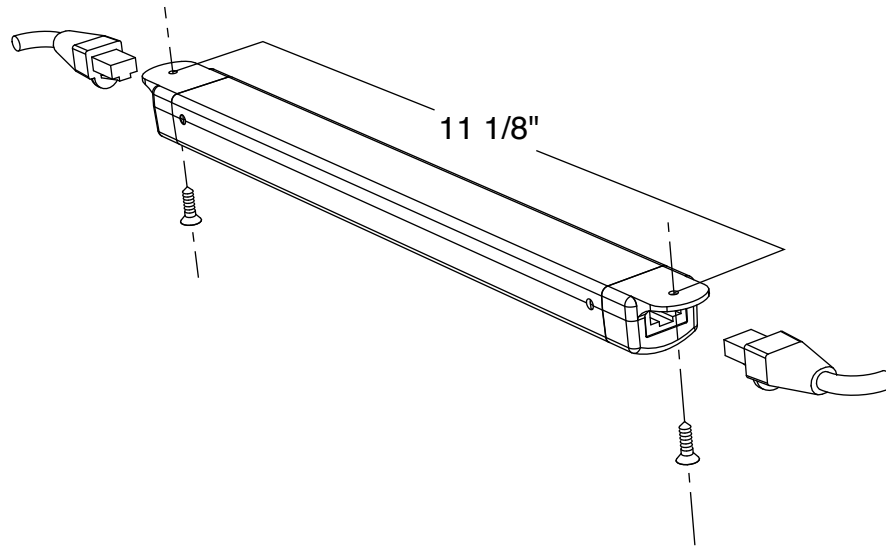
RJ45 connector pinout (front view)

Wiring Diagram

Pin	Color (both sides identical)
1	White with orange
2	Orange
3	White with green
4	Blue
5	White with blue
6	Green
7	White with brown
8	Brown

Cable wire assignment

Installation

The LA-001 contains two mounting holes 11 1/8″ (28.25 cm) apart as shown in the following illustration. Number 4 wood screws may be used to mount the fixture to a wood surface. Be sure that the screws are flush with the mounting tab. **Do not tighten excessively.**

11 1/8"

The installation process consists of the following steps.

1. Mount all LA-001 fixtures.

2. Mount the LED Controller and it's external power supply if necessary (the power supply should not be energized until the installation is complete).

3. Connect the LED Controller and LA-001 fixtures with LEDdrive cables.

4. Energize the LED Controller (or associated power supply). Verify the power indicator on the LED Controller is illuminated.

5. Test installation. Verify correct operation of the installation.

Cleaning Instructions

The polycarbonate lens is susceptible to scratches and abrasions, as well as to damage by certain solvents. To avoid damaging the LA-001 fixture please adhere to the following cleaning instructions.

"DO'S"
1. Use only a mild soap or detergent (such as Formula 409 cleaner) and lukewarm water applied to a clean sponge or soft cloth to clean the fixture. Other cleaners such as Joy, Fantastic, Top Job and Mr Clean may also be used.
2. Do not allow liquids to enter the connector areas. Apply the cleaner and water to the sponge or soft cloth and then clean the fixture. Do not directly apply liquids to the fixture.
3. Dry thoroughly with a chamois or moist cellulose sponge to prevent water spots.
4. Grease can be removed before drying by rubbing lightly with a good grade of naphtha or isopropyl alcohol. Follow the alcohol rub with the mild cleaning described above.

"DON'TS"
1. Never use abrasive cleansers, abrasive pads or gritty cloths.
2. Never scrape the fixture with a sharp tool such as a razor blade.
3. Never use highly alkaline cleansers, benzene, gasoline, acetone or carbon tetrachloride as a cleanser.
4. Don't clean the fixture in hot sun or very hot days.

Troubleshooting

Please refer to the following table for help troubleshooting an installation.

Problem	Possible Cause
Fixture does not operate	LED Controller is not powered.
	LEDdrive cable is too long.
Fixture colors are not as expected	The LED Controller configuration has not been set to RGBW.
	A custom LEDdrive cable has been wired incorrectly.

Manufacturer warrants this product to be free from defects in material and workmanship under normal use and conditions ("manufacturing defect") for a period of one (1) year from date of original purchase (the invoice date). This warranty extends to the original buyer (Purchaser) or end-user customer of Manufacturer authorized reseller, and does not apply to fuses, batteries, equipment attached to product or any product, which, in Manufacturer's opinion, has been misused, altered, neglected or damaged by accident or abnormal conditions of operation or handling. Manufacturer will, at its option, repair or replace the Product, or reimburse Purchaser or end user for the full purchase price.

To obtain service, obtain a return authorization (RMA) from the Manufacturer website and then follow the instructions for return of the unit you receive with the RMA.

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Since some countries and states do not allow limitation of the term of an implied warranty, or exclusion or limitation of incidental or consequential damages, the limitations and exclusions of this warranty may not apply to every buyer. If any provision of this warranty is held invalid or unenforceable by a court of competent jurisdiction, such holding will not affect the validity or enforceability of any other provision of this warranty.
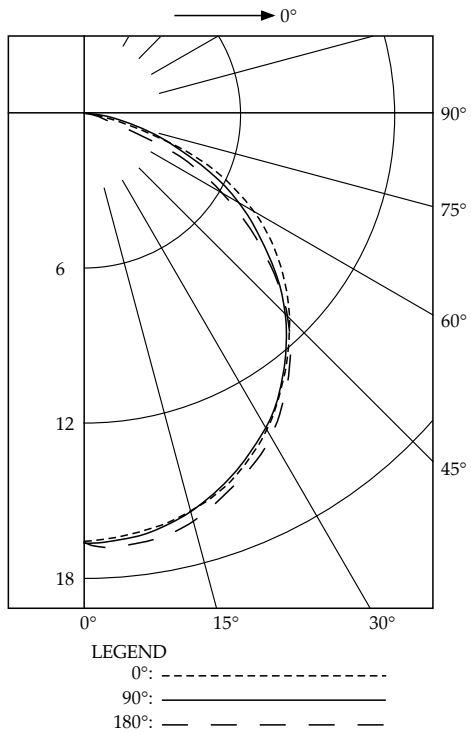
Warranty Information

Array Characteristics	LED Type	12 RGB LEDs 12 Warm White LEDs 120° Beam Angle
	Warm White LED characteristics	3000K Color temperature 65 CRI 18.7 Lm/W Efficacy (with controller)
	LED Lifetime to half brightness	70,000 hours at 25°C ambient temperature and with the LED Controller set to RGBW configuration.
Interface	Type	Giulio Lighting LEDdrive proprietary interface
	Connector	RJ45 8-pin female connector 8 conductor cable Power + 4 channels LED modulation
Power	DC Input	24 volts DC, 3.5 watts maximum
Dimensions	Width	2.62 cm / 1.03"
	Length	30.33 cm / 11.94"
	Height	2.06 cm / 0.81"
	Weight	73 gm / 2.58 oz
Environmental	Operating	0 - 50º C / 32 - 122º F 20 - 90% relative humidity, non-condensing
	Storage	-20 - 60º C / -4 - 140º F 10 - 95% relative humidity, non-condensing
Regulatory	FCC	FCC Class B
	UL	UL2108 and UL8750

Typical Fixture output
(White LEDs at 100%)

Candela Distribution

ANGLE	0	45	90	135	180
0	16.7	16.7	16.7	16.7	16.7
5	16.5	16.6	16.6	16.7	16.9
15	16.0	16.1	16.0	16.2	16.4
25	14.9	15.1	14.8	15.0	15.2
35	13.3	13.3	13.3	13.4	13.5
45	11.3	11.2	11.1	11.1	11.1
55	8.9	8.7	8.4	8.2	7.9
65	6.0	6.0	5.4	4.6	4.4
75	1.5	2.4	2.3	1.6	0.4
85	0.2	0.2	0.2	0.3	0.1
90	0.1	0.1	0.0	0.1	0.1

LEGEND
0°: ------------------------
90°: ————————————
180°: — — — — —

Zonal Lumen Summary

Zone	LUMENS	% Fixture Total
0 - 30°	13.1	29.0
0 - 40°	21.4	47.6
0 - 60°	37.6	83.4
0 - 90°	45.0	100.0

Test procedure: IESNA LM-79-08

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Giulio
Lighting

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